HAND TRIM TOOL

BACKGROUND OF THE INVENTION

1. Field of the Invention:

This invention relates to a hand tool for trimming a frame for a building wall opening, such as a window or a door, and more particularly to a hand tool which detachably clamps trim pieces to a window or door casing while the trim is being attached to the casing.

2. Description of Prior Art and Objects:

Window and door openings in a typical building construction are "roughed in" with a rectangular door or window casing including a bottom sill plate, an overlying header and repair of vertical side boards spanning the header and the sill plate. Typically, the opening has an irregular shape relative to the rectangular casing and thus, a gap exists between the casing and the wall. It is usual to mount trim members about the casing to cover the gap between the wall and the casing. The trim members typically comprise four trim members disposed at right angles to each other and at right angles to each of the window frame members and are nailed to the edges of the casing. It is typical that such trim members having abutting edges cut at complementally formed 45° angles.

Carpenters frequently work alone and it can be difficult for a carpenter to hold and correctly position two or more trim members on the window or door casing and concurrently nail the trim to the casing. Accordingly, it is an object of the present invention to provide a new and novel trim tool which holds individual trim members in right angular relation to allow a carpenter to use both hands to fasten the trim members to the casing.

To improve the aesthetics of window trim, it is important that the 45° abutting ends of the trim members be forced together in tight abutting relation to eliminate and/or minimize any gap that might otherwise exist therebetween if the trim members are not forced tightly together. Accordingly, it is another object of the present invention to provide a new and novel trim tool for urging abutting ends of trim members together to close the joint therebetween prior to being fastened to the casing.

Another object of the present invention is to provide a trim tool of the type described which will apply forces to the outer edges of the trim boards for urging the abutting margins of the trim boards under compressive pressure to close the joint between the abutting margins.

Sometimes, it is possible to preconstruct the trim frame in a shop and ship the assembled trim frame to the building site, however, this can cause substantial problems in shipping and storing a relatively fragile frame. Accordingly, it is yet another object of the present invention to provide a hand tool of the type described which will insitu hold the individual trim members to the window frame on site by reacting between the trim members and the casing for detachably holding the trim pieces to the casing.

It is a further object of the present invention to provide a trim tool of the type described which includes a pair of right angularly related clamp members.

It is still a further object of the present invention to provide a trim tool of the type described including a pair of right angularly clamp assemblies each including an outer clamp face for clamping against one of the trim members and a relatively moveable inner clamp face for clamping against the window casing.

In a conventional building construction, the edges of the planar window frame members are mounted flush with the drywall which typically covers buildings studs. The trim boards are mounted on the outer edges of the window frame members. It has been found according to the present invention that the clamp arm which clamps to the window casing must be longer than the clamp arm which clamps to the trim boards. Accordingly, it is still another object of the present invention to provide a trim tool of the type described having a frame mounting a pair of right angularly disposed clamp members of the type described each including an outer clamp face which projects away from the frame a predetermined distance and bears against the wall of the building and an inner clamp face which projects away from the frame a greater predetermined distance for clamping against one of the window frame members.

These and other objects of the present invention will become more readily apparent as the descriptions hereof proceeds:

SUMMARY OF THE INVENTION

A framing hand tool for temporarily mounting individual frame pieces to an opening casing while the frame pieces are being fastened to the opening casing comprising a corner clamp assembly which reacts between the casing and at least a pair of right angularly related trim pieces for holding marginal portions of the trim pieces in abutting relation to form a joint.

DESCRIPTION OF THE DRAWINGS

The invention may be more readily understood by referring to the accompanying drawings, in which:

Fig. 1 is a front elevational view illustrating trim frame pieces mounted on an opening casing, part of the trim frame being broken away to more clearly illustrate the window casing on which the trim frame is mounted;

Fig. 2 is an enlarged front elevational view of a hand tool constructed according to the present invention mounted on one of the corners of the frame illustrated in the chain line circle 2-2 of Fig. 1;

Fig. 3 is a greatly enlarged sectional taken along the section line 3-3 of Fig. 2, illustrating the framing tool mounting the trim frame on an opening frame which is disposed in a building wall;

Fig. 4 is a perspective view of the apparatus illustrated in Figs. 2 and 3; and

Fig. 5 is a greatly enlarged sectional view of the portion illustrated in the chain line circle 5-5 of Fig. 3.

DESCRIPTION OF PREFERRED EMBODIMENT

A trim tool, generally designated 10, constructed according to the present invention is particularly adapted for use in clamping a trim frame, generally designated 12, to an opening casing or frame 14 disposed in an opening 20 provided in a building wall, generally designated 16. The building wall 16 includes a plurality of upstanding studs 17 covered by panels 18 of drywall or the like. The opening or window casing 14 includes a bottom planar sill 22 and a parallel overlying header 24 spanned by vertical end frame boards or members 26 suitably nailed together. The casing 14 may be coupled to the wall 16 via nails 26. As illustrated, the end frame members lie in horizontally spaced apart, vertical planes P1 which are perpendicular to vertically spaced apart, horizontal planes P2 in which the sill 22 and header 24 lie.

The trim tool 10 includes a corner clamp assembly, generally designated 25, for clamping the trim frame 12 to the opening casing 14. The trim frame 12 includes top and bottom trim frame members 29 and 31, respectively, spanned by vertical end trim frame members 33 having marginal end portions 35 and 37 cut at complementally formed 45° angles and disposed in abutting relation to provide a joint 39. The top trim frame member 29 includes inner and outer edges 29A and 29B, respectively, and the side trim frame members 33 include inner and outer edges 33A and 33B , respectively. As illustrated in the drawing, the trim frame member 29, 31 and 33 all lie in a third plane P3 which is perpendicular to the planes P1 and P2 of the window casing members.

The corner clamp assembly 25 includes a corner clamp frame or mounting support, generally designated 30, including a pair of right angularly related support or arms 32 and 32A rigidly coupled together via a corner bracket 34. Mounted on the support arms 32 and 32A are clamping members 36 and 36A, respectively. Hereafter, the clamp 36 will be described in detail with the understanding that the clamp 36A includes similar parts followed by the reference character A.

The upstanding window frame members 26 each includes inner and outer planar faces 26A and 26B, respectively, spanned by forward and rear edges 26C and 26D, respectively. The header 24 includes similar outer parallel inner and outer faces 24A and 24B, respectively, spanned by forward and rear edges 24C and 24D, respectively.

The clamp member 36 includes inner and outer clamp confronting arms 40 and 42, respectively, slidably coupled together via a rectangular rod 44 which is fixed to the forward end 46 of the outer clamp 42 and is linearly slidably moveable in an opening or slot 48 (Fig. 5) provided through inner clamp arm 40. The opening 48 is slightly larger than the

rectangular rod 44 to allow slight swinging movement, in a forward direction, represented by the arrow 50, from the position illustrated in Fig. 5 to the position illustrated in chain lines in Fig. 5. When the clamp arms 40 and 42 are clamped in the positions illustrated in Fig. 3, the serrations or teeth 52 on the forward edge of the rod 44 engage the inside surface 47 of the opening 48 and hold the rod 44 in position to preclude relative separation of the clamp bars 40, 42.

The outer clamp arm 42 has a predetermined length and includes a rearward end portion 53 having an outer clamp face 56 for bearing against the outer edge 33B of the trim frame member 33. The end portion 53 includes a terminal end surface 54 which bears against the surface 18A of the drywall panel. The inner clamp arm 40 is longer than the outer clamp arm 42 and extends rearwardly away from the support frame 32 a greater distance 45 than the distance 43 which the clamp arm 42 extends rearwardly relative to support arm 32. The rear end of the inner clamp arm 40 includes a threaded opening 58 threadedly receiving a threaded rod 60 having a manually graspable handle 62 at one end and a pivot (not shown) rotatably mounting a clamp face 64 for bearing against the inner planar face 26A of the vertical casing member 26.

The threaded rod 60 is rotatable about its axis 66 which is aligned with the surface 18A and the terminal end 54 of the outer clamp arm 42 so that only the rearward half 67 of the inner clamp face 64 engages the window frame inner surface 26A. The forwardmost one-half portion 68 of the clamp face 64 does not engage the inner frame board surface 26A.

METHOD AND OPERATION

It will be assumed that the building wall 16 is constructed as illustrated with an opening 20 having a window casing 14 mounted therein and nailed to adjacent studs 17 and/or the wall panels 18.

It will also be assumed that initially only the top trim board 29 and one vertical trim board 33 is disposed adjacent the upper right hand corner of the window frame 14 in the positions illustrated in Figs. 3 and 4. The corner clamp hand tool 10 is mounted on the upper right hand corner of the opening frame 14.

Initially, the outer clamp arms 42 and 42A are preset relative to the inner clamp arms 40 and 40A by sliding the bars 44 and 44A in the openings 48 and 48A. This movement provides an initial rough adjustment of the clamp arms 40, 40A, 42 and 42A so that the outer clamp faces 56 and 56A will bear against the outer edges 31B and 29B of the trim frame members 31 and 29, respectively. The tool 10 will be disposed such that the terminal end 54 of outer clamp arm 42 will bear against the wall forward surfaces 18A of the wall board 18.

The handles 32 and 32A are then turned to thread the rods 60 and 60A in the threaded openings 58 and 58A to outwardly move the inner clamp faces 64 and 64A, in the direction of the arrows 69, to force the inner clamp faces 64 and 64A against the forward edge portions of the inner, planar window frame faces 26 and 26A, respectively, of window frame planar panel members 33 and 29, respectively. The turning of the handles 62 and 62A will concurrently oppositely force the marginal abutting terminal trim frame ends 35 and 37 toward each other, in the direction of the arrows X and Y, to close the trim joint 39.

The clamp frames 36 and 36A thus react between the window frame 14 and the trim frame 12 to force the trim frame members 29 and 33 together to close the gap at the joint 39. With the trim frame members thus held, the carpenter is free to use both hands to nail the trim frame members 33 and 29 to the window frame members 26 and 24, respectively.

As the handle 62 continues to be turned to tightly clamp the inner clamp arms 40 and outer clamp arm 42 to the trim frame members 33, the outer clamp arm 42 and mounting rod 40 will swing forwardly slightly, in the direction of the arrow 50, to force the teeth or serrations 52 and 52A against the inside surfaces 47 to preclude separation of the inner and outer clamp arms 40 and 42 away from each other.

After the carpenter fastens the trim pieces 33 and 29 to the window frame members 26 and 24, respectively, the handles 62 and 62A are oppositely rotated to release the clamp arms 40, 42, 40A and 42A. The trim tool 10 is then moved to one of the other corners of the casing and clamped to another pair of trim frame members. The operation may be repeated until all of the trim frame members 29, 31 and 33 are fastened tightly together and secured to the window casing 14.

It is to be understood that the drawings and descriptive matter are in all cases to be interpreted as merely illustrative of the principles of the invention, rather than as limiting the same in any way, since it is contemplated that various changes may be made in various elements to achieve like results without departing from the spirit of the invention or the scope of the appended claims.